

# Infusion and removal of liquid radioisotope into the brain

*Request for appropriate ICD-9  
For Brain Cancer Treatment Procedure*

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# Infusion and removal of liquid radioisotope into the brain

- Technology not accurately described by current ICD-9-CM
- Clinical overview of treatment of brain cancer
- Describe inpatient admission for infusion and removal of liquid radioisotope into the brain

# GliaSite Radiation Therapy System (RTS)

## Unique Balloon Catheter

- Reservoir for radiation source
- Three variable balloon sizes
- Designed for safety



## Unique Liquid Radioactive Source (Iotrex®)

- $^{125}\text{I}$  liquid radioactive brachytherapy source
- Low Dose Rate radiation
- Formulated for safety

*“This modality is appealing because of the high spatial localization of the dose and the favorable therapeutic ratio afforded by the continuous administration of radiation at a low dose rate this spares normal brain tissue from adverse radiation effects”*

*Tatter et. al., J of NS, August 2003*

# Brain Cancer Treatment Evolution and New Technology

- Historical - brachytherapy showed survival benefit, but high rates of re-operation for necrosis
  - *Difficult to control dosing, resulting in high radionecrosis rates*
- *GliaSite RTS addresses many of the treatment limitations associated with conventional brachytherapy*
  - *More conformal, uniform dose delivery*

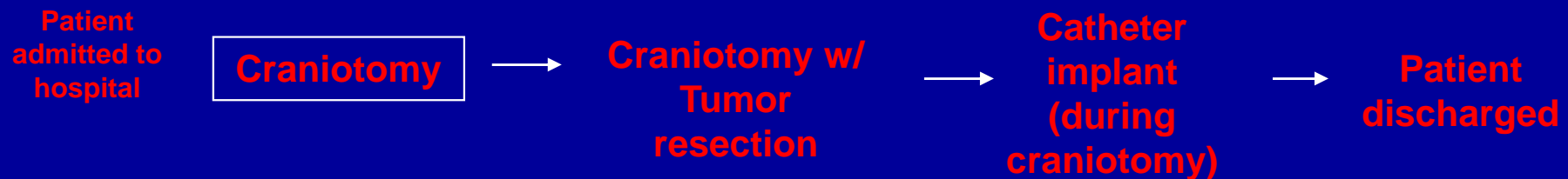
*GliaSite RTS allows an additional radiation dose to be delivered in a way that maximizes the patient's quality of life while delivering a radiation dose to the tissues at greatest risk of recurrence"*

*Tatter et. al., J of NS, August 2003*

## **Clinical Benefits of Infusion and Removal of I-125 Iotrex (GliaSite System) to Brain**

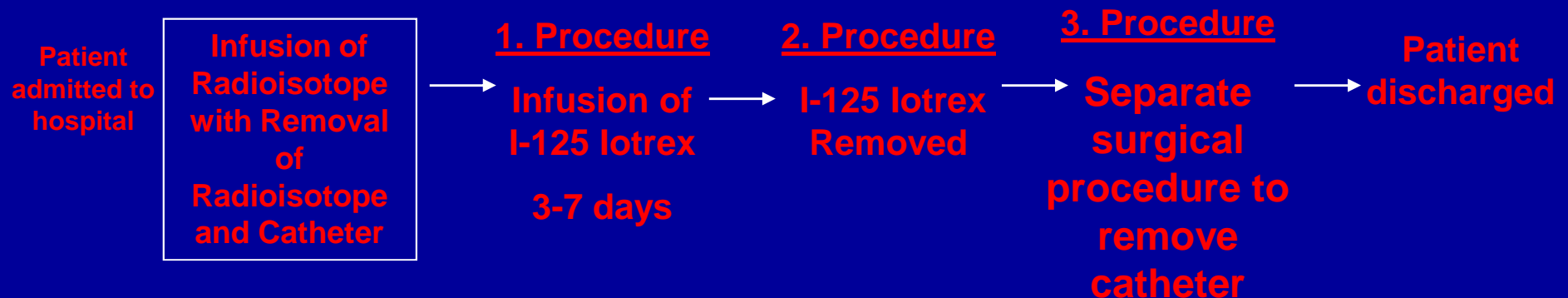
- Delivers radiation to the tissue at highest risk for recurrence
- Minimize harmful effects of radiation exposure to healthy brain tissue
- Achieve local tumor control
- Increased survival (Tatter, et al, 2003; Gabayan, et al, 2004)
- Preserve quality of life (Rogers, et al, 2004)

# Brain Cancer Treatment with I-125 Iotrex Requires Two Hospital Admissions



▪Recovery + Treatment planning and ordering of Iotrex

▪Admission about 2-3 weeks following Craniotomy



# Infusion of liquid radioisotope into the brain (Procedure 1)

- Radioisotope infusion into special catheter implanted in brain
- Requires a 3-7 day hospital admission
- Infusion requires compliance with Nuclear Regulatory Commission (NRC) Regulations

# Removal of liquid radioisotope from the brain (Procedure 2)

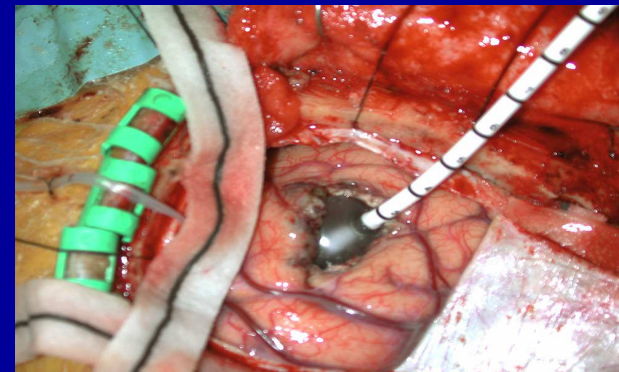
- 3-7 days after infusion
- Removed under local anesthesia
- Patient monitored
- Catheter flushed with saline
- Appropriate disposal of radioisotope and contaminated materials within NRC guidelines





# Surgical Removal of Catheter (Procedure 3)

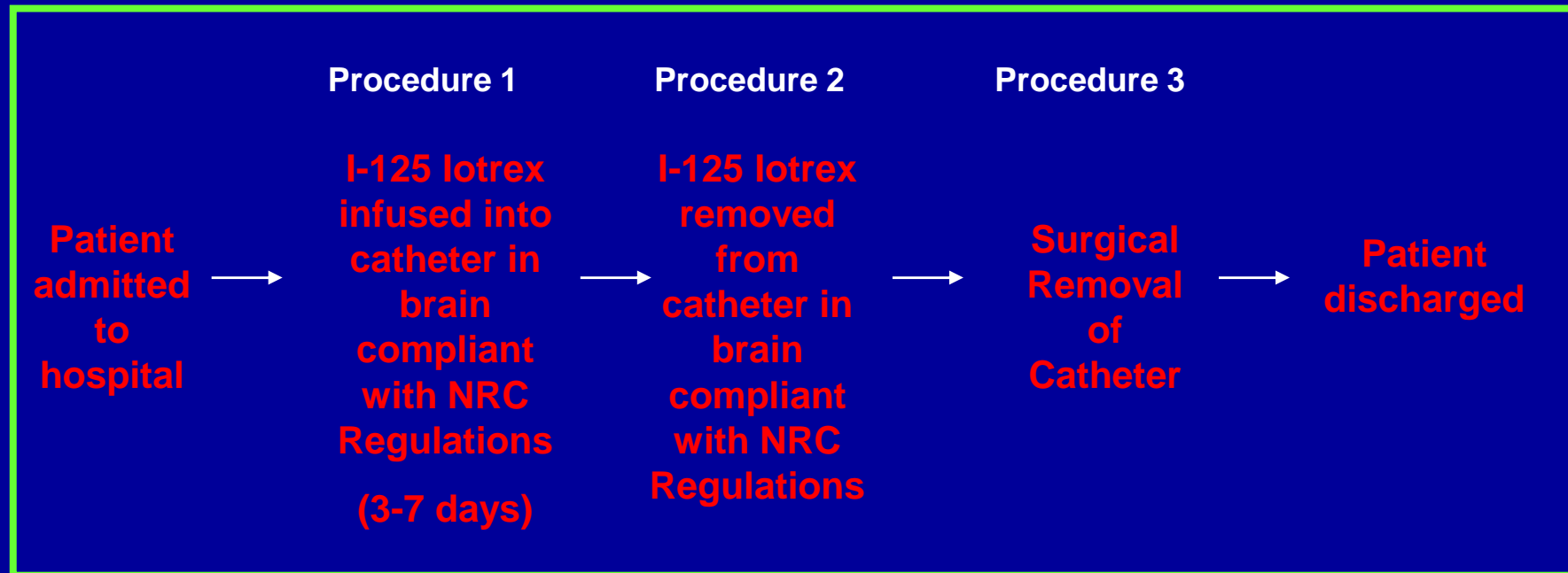
- Patient moved to OR
- General anesthesia
- Catheter removal
  - Incision made in scalp
  - Screws removed from scalp to remove port
  - Balloon end of catheter gently withdrawn through burr hole
  - Patient incision carefully closed and patient moved to recovery



## GliaSite Iotrex I-125 NRC Licensure

- Federally mandated that any facility that utilizes radioactive materials requires a license
  - License must comply with specific Iotrex 1-125 guidelines
- NRC regulates use and disposal of radioactive materials

# Infusion and removal of liquid radioisotope into the brain



# Infusion and removal of liquid radioisotope into brain

## *Key Issues*

- Distinct inpatient admission
  - Three unique procedures during admission
- Procedures not described by current ICD-9
- Lack of appropriate ICD-9 may impact patient access to technology

## ICD-9 Required

“Infusion and removal of  
liquid radioisotope into  
the brain”